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(FILE 'HOME' ENTERED AT 15:32:40 ON 27 AUG 2003)

FILE 'CA' ENTERED AT 15:32:50 ON 27 AUG 2003

L1 2297 S (VACUUM OR CHAMBER) (3A) (LOCK OR VALVE OR SLUICE)
L2 113 S L1 AND MASS SPECTRO?
L3 91 S AUTO? (3A) (LOAD? OR INSERT?) (6A) SAMPLE
L4 11 S L3 AND (DOOR OR VACUUM OR LOCK OR MASS)
L5 208 S L1 AND (CASSETTE OR SUPPORT OR PLATE)
L6 38 S L5 AND (LASER OR SUBSTRATE)
L7 121 S L1 AND TRANSPORT?
L8 562 S L1/TI, IT, ST
L9 16 S L7 AND L8
L10 172 S L2, L4, L6, L9
L11 115 S L10 NOT PY>1996

=> d bib,ab 1-115 111

L11 ANSWER 9 OF 115 CA COPYRIGHT 2003 ACS on STN

AN 122:120716 CA

TI Characterization and improvement of gaseous contamination levels in a multi-chamber etch tool

AU Huling, Bruce; Lynn, Sui Yuan; Su, May

CS Air Products and Chemicals, Inc., USA

SO Proceedings - Institute of Environmental Sciences (1993), 39TH(VOL. 1), 124-7

AB Equipment design can play a major role in controlling wafer contamination. The design of multi-chamber process tools is esp. crit., as the wafer is typically placed through several different environments while undergoing sequential process steps. This paper characterizes some of the gaseous contamination found within a multi-chambered process tool. Using a quadruple mass spectrometer, gaseous contamination transfer mechanisms were studied in the buffer load locks, wafer transfer chamber, and process chambers. The effects of cross contamination from ambient to loadlock, loadlock to central wafer transfer chamber, process module to wafer transfer chamber, and process module to process module were studied. Cumulative effects of contamination are also shown. While cross contamination is possible within the multi-chamber tool, contamination can be minimized by the addn. of post evacuation cycles, balanced transfer pressures between pumped modules, and carefully selected purge rates which effectively exclude contamination from entering the processing modules.

L11 ANSWER 20 OF 115 CA COPYRIGHT 2003 ACS on STN

AN 115:140983 CA

TI Sputter cleaning of iron substrates and contamination of titanium nitride coatings studied by in situ Auger electron spectroscopy measurements in an ultrahigh vacuum physical vapor deposition apparatus

AU Eguchi, N.; Grajewski, V.; Uchida, H. H.; Fromm, E.

CS Inst. Werkstoffwiss., Max-Planck-Inst. Metallforsch., Stuttgart, 7000/10, Germany

SO Materials Science & Engineering, A: Structural Materials: Properties, Microstructure and Processing (1991), A139, 339-44

AB The design of a 3-chamber ultrahigh vacuum magnetron sputtering app. with facilities for in situ Auger electron spectroscopy (AES) measurements and plasma diagnostics is presented. The sample can be moved under ultrahigh vacuum conditions from the sputtering chamber through a transfer chamber to the AES anal. chamber. The 3 chambers are pumped sep. and samples can be charged and discharged through a lock chamber without interruption of the

vacuum. The sputtering unit is equipped with a quadrupole **mass spectrometer** and an optical multi-channel analyzer for plasma diagnostics. Expts. were performed to det. optimum conditions for the d.c. sputter-cleaning process with Fe. The parameters tested were plasma voltage, sputtering time, and impurity content of the gas phase. At high plasma voltages, nitriding of the surface was obsd. The contamination of TiN coatings was examd. as a function of O and water vapor content in the plasma atm. during film deposition.

- L11 ANSWER 25 OF 115 CA COPYRIGHT 2003 ACS on STN
AN 112:244717 CA
TI Sputtering apparatus for production of thin films of magnetic materials
IN Kamei, Mitsuhiro; Setoyama, Eiji; Oikawa, Shinzou
PA Hitachi, Ltd., Japan
SO U.S., 7 pp.
PI US 4911815 A 19900327 US 1988-281777 19881209
PRAI JP 1987-317518 19871217
AB A magnetic film deposition chamber having Helmholtz coils and a preliminary chamber are connected through a gate valve. Two magnetic **plates** are fixed to the magnetic film deposition chamber near both ends. **Substrates** overlying apertures of a **substrate** holder are moved by a conveyer together with the **substrate** holder. The conveyor moves from the preliminary chamber to the film deposition **chamber** through the gate **valve**. The **substrates** are then positioned over and between the magnetic **plates** and are located above the target in the magnetic film deposition chamber.
- L11 ANSWER 27 OF 115 CA COPYRIGHT 2003 ACS on STN
AN 110:203552 CA
TI Plasma treatment apparatus
IN Miyamura, Tadashi; Sugawara, Shigeo
PA Sumitomo Metal Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
PI JP 63244619 A2 19881012 JP 1987-78776 19870330
PRAI JP 1987-78776 19870330
AB The title app. is characterized by arrangement of electron cyclotron resonance plasma generation chambers on both sides of the sample chamber and placement of susceptors facing the plasma inlets, and optional installation of a load-lock **chamber**, in which **substrate cassettes** are retained, attached to the specimen chamber using a gate value and a connecting path. The app. has increased productivity in chem. vapor deposition and etching.
- L11 ANSWER 28 OF 115 CA COPYRIGHT 2003 ACS on STN
AN 110:201179 CA
TI Time-of-flight **mass spectrometer** for investigating hydrogen isotope interactions; hydrogen/deuterium exchange rates at stainless steel and silicon surfaces
AU Gill, J. T.; Watkins, D. B.; Rigano, J. N.; Clift, W. A.; Watkins, R. A.; Burwinkle, A. L.; Schultz, J. A.; Anderson, L. R.; Schmidt, H. K.
CS Monsanto Res. Corp., Miamisburg, OH, 45342, USA
SO Fusion Technology (1988), 14(2, Pt. 2B), 1026-35
AB Time-of-flight Secondary Ion **Mass Spectrometry**/Direct Recoil (TOF SIMS/DR) techniques and app. are described which hold substantial promise for further understanding the behavior of H isotopes at surfaces. The anal. app. will be interfaced to a T-compatible exposure cell within a glovebox by means of a **vacuum load-lock**. App. will consist of a pulsed Li⁺ beam for H/D/T ratios (DR), a d.c. or pulsed Cs⁺ beam for sputtering or TOF/SIMS (for enhancement of neg. ion yields), and a dual channel 10 MHz time-digitizing histogrammer for fast data rates. Prototype app. has already proven useful in

understanding the rates at which H isotopes may be exchanged from material surfaces upon exposure to water vapor. An extremely fast and a 2nd much slower process characterize the exchange at Si and stainless steel oxyhydroxide surface films. The fast process is limited by the rate at which water mols. strike the top monolayer of the surface. H/D exchange tunneling appears to be involved. The slow process appears to be the bulk diffusion-limited exchange rate within the oxyhydroxide film. Diffusion consts. were derived: Dex 10-19 and 10-20 cm²/s for the films on 304 stainless steel (SS) and Si, resp., at 298K and 1.3 × 10⁻⁴ Pa (10⁻⁶ torr) [H₂O]. Dex For 304SS is consistent with previous results on α -FeOOH and SS. Diffusion exchange appears important in understanding the behavior of T permeation or contamination barriers.

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